

71
CLAIMS

1. A method of operating a contact center using a service system to establish communication over a data network between customer endpoint systems and the endpoint
5 systems of customer service representatives, CSRs, of the contact center; the service system establishing communication between endpoint systems by joining them to an appropriate communication session with an associated transport mechanism that allows the exchange of data across the network between the joined endpoint systems; the service system, in setting up a communication session, creating a respective service-session
10 functional entity that keeps a record of the endpoint entities currently joined to the communication session and comprises:

- a session instance with generic behaviour for adding and removing endpoint systems to the communication session, and
- an associated service instance with service-specific behaviour determining when the
15 session instance is to add and remove endpoint systems;

the method involving specifying different service-specific behaviours and offering a range of corresponding customer services with the use of a service by a customer involving a communication from the customer endpoint system over the network to the service system that identifies the service, and thus the service-specific behaviour, to be implemented.

20

2. A method according to claim 1, wherein the session instance includes a generic behaviour for enabling a first CSR, already in the corresponding session with a customer, to conference in a second CSR, this behaviour being triggered by the first CSR sending a conference request to the service instance of the session and the service instance, after
25 having determined the identity of an appropriate second CSR if not specified in the conference request, then calling upon the session instance to join a specific second CSR to the session.

3. A method according to claim 1, wherein the session instance includes a generic
30 behaviour for enabling a first CSR, already in the corresponding session with a customer, to transfer the customer to a second CSR; this behaviour being triggered by the first CSR sending a transfer request to the service instance of the session and the service instance,

after having determined the identity of an appropriate second CSR if not specified in the transfer request, then calling upon the session instance to join a specific second CSR to the session, the session instance removing the first CSR from the session once the second CSR has been joined.

5

4. A method according to claim 1, wherein an endpoint system wishing to join a specific communication session, sends identifying data to the service system identifying itself and the session concerned, the service instance of the identified session then being responsible, in accordance with its specific behaviour, for causing the corresponding session instance to join the endpoint system to the communication session.

5. A method according to claim 1, wherein an endpoint system wishing to join a communication session concerning a target subject, sends identifying data to the service system identifying itself and describing the target subject, the service system using the identifying data to identify or create an appropriate communication session and the service instance of that session then being responsible, in accordance with its specific behaviour, for causing the corresponding session instance to join the endpoint system to the communication session.

20

6. A method according to claim 1, wherein a first endpoint system wishing to request that a specific second endpoint system join in a communication session to which the first endpoint entity is currently joined, sends identifying data to the service system identifying the current communication session and the specific second endpoint system, the service instance of the current communication session then being responsible, in accordance with its specific behaviour, for causing the corresponding session instance to invite the identified second endpoint system to the communication session.

25

7. A method according to claim 1, wherein a first endpoint system wishing to request that a second endpoint system relevant to a target subject join a communication session to which the first endpoint system is currently joined, sends identifying data to the service system identifying the current communication session and describing the target subject, the

30

service instance of the current communication session then being responsible, in accordance with its specific behaviour, for identifying a specific second endpoint system appropriate for the target subject and causing the corresponding session instance to invite the identified second endpoint system to the communication session.

5

8. A method according to claim 1, wherein a first endpoint system wishing to request that a specific second endpoint system join in a communication session with the first endpoint entity, sends identifying data to the service system identifying itself and the specific second endpoint system, the service system creating a new communication session and the service instance of this session being responsible, in accordance with its specific behaviour, for causing the corresponding session instance to invite both endpoint systems into the newly-created session.

9. A method according to claim 1, wherein a first endpoint system wishing to request that a specific second endpoint system join the first endpoint entity in a communication session in connection with a target subject, sends identifying data to the service system identifying itself, the target subject and the specific second endpoint system, the service system using the identifying data to identify or create an appropriate communication session and the service instance of this session then being responsible, in accordance with its specific behaviour, for causing the corresponding session instance to invite both endpoint systems into the communication session.

10. A method according to claim 1, wherein a first endpoint system wishing to communicate with a second endpoint system appropriate to a target subject, sends identifying data to the service system identifying itself and describing the target subject, the service system using the identifying data to identify or create an appropriate communication session and the service instance of this session then being responsible, in accordance with its specific behaviour, for identifying a specific second endpoint system appropriate for the target subject and causing the corresponding session instance to invite both endpoint systems into the communication session.

11. A method according to claim 1, wherein a said service-session functional entity, when

joining an endpoint system to the communication session, sends connection details of the transport mechanism associated with the communication session to the endpoint system or its proxy, that endpoint system or its proxy then using the connection details to connect itself to the transport mechanism.

5

12. A method according to claim 1, wherein the transport mechanism associated with a communication session provides multiple data transfer channels, for different media types, between endpoint systems joined to the communication session.

10 13. A method according to claim 12, wherein the endpoint systems include web browser functionality and the service system provides functionality, and the transport mechanism provides channels, for at least two of the following:

- text chat ;
- follow-me page-push;
- 15 - packetized voice.

14. A method according to claim 11, wherein the transport mechanism associated with a communication session provides multiple data transfer channels, for different media types, between endpoint systems joined to the communication session, the connection details
20 passed to an endpoint system, or its proxy, comprising details of the media channels associated with the communication session, and the endpoint system or its proxy using these details to establish corresponding media channel connections to the transport mechanism.

25 15. A method according to claim 11, wherein the state of connection of an endpoint entity to the transport mechanism is signalled to the session-service functional entity by leg messages passed between a leg controller of the endpoint system or its proxy and a corresponding leg controller of the service-session functional entity.

30 16. A method according to claim 11, wherein an endpoint entity to be joined to a communication session, or its proxy, already has connection functionality for joining and participating in a communication session, the service-session functional entity of the

communication session to which the endpoint entity is to be joined inviting this entity into the session by sending said connection details to the connection functionality of the entity or its proxy.

- 5 17. A method according to claim 11, wherein the service-session functional entity of the communication session to which an endpoint entity is to be joined, invites this entity into the session by sending the latter both connection functionality for joining and participating in a communication session, and said connection details.
- 10 18. A method according to claim 17, wherein the connection details and functionality are sent in association with a web page served by the service system.
19. A contact-center service system for enabling communication over a data network between customer endpoint systems and the endpoint systems of customer service
- 15 representatives, the system comprising:
 - an initiation arrangement responsive to customer input over the data network to initiate creation of a service-specific communication session;
 - a service-session subsystem responsive to the initiation means to generate a service-session functional entity for establishing and managing a communication session
 - 20 between endpoint systems joined to the session, the service-session functional entity being operative to keep a record of the endpoint entities currently joined to the communication session and comprising:
 - a session instance with generic behaviour for adding and removing endpoint systems to the communication session, and
 - 25 - an associated service instance with service-specific behaviour determining when the session instance is to add and remove endpoint systems;
- the service behaviour of the service being dependent on the customer input to the initiation arrangement and being one of multiple possible behaviours for which the service-session subsystem can provide service instances; and
- 30 - a transport subsystem for providing a respective transport mechanism for each communication session established by the service-session subsystem, the transport

mechanism being operative to enable the exchange of data across the network between the endpoint systems joined to the corresponding communication session.

20. A system according to claim 19, wherein the session instance includes a generic
5 behaviour component for enabling a first CSR, already in the corresponding session with a customer, to conference in a second CSR, this component being triggered by the first CSR sending a conference request to the service instance of the session and the service instance, after having determined the identity of an appropriate second CSR if not specified in the conference request, then calling upon the said component of the session instance to join a
10 specific second CSR to the session.

21. A system according to claim 1, wherein the session instance includes a generic
behaviour component for enabling a first CSR, already in the corresponding session with a
customer, to transfer the customer to a second CSR; this component being triggered by the
15 first CSR sending a transfer request to the service instance of the session and the service instance, after having determined the identity of an appropriate second CSR if not specified in the transfer request, then calling upon the said component of the session instance to join a specific second CSR to the session, the session instance removing the first CSR from the session once the second CSR has been joined.

20
22. A system according to claim 19, wherein a said service-session functional entity is operative, when joining an endpoint system to the communication session, to send connection details of the transport mechanism associated with the communication session to the endpoint system or its proxy thereby to enable that endpoint system or its proxy to
25 use the connection details to connect itself to the transport mechanism.

23. A method according to claim 19, wherein the transport mechanism associated with a communication session is operative to provide multiple data transfer channels, for different media types, between endpoint systems joined to the communication session.

30

24. A system according to claim 23, wherein the service system provides functionality, and the transport mechanism provides channels, for at least two of the following:

- text chat ;
- follow-me page-push;
- packetized voice.

5 **25.** A system according to claim 22, wherein the transport mechanism associated with a communication session is operative to provide multiple data transfer channels, for different media types, between endpoint systems joined to the communication session, the connection details passed to an endpoint system, or its proxy, comprising details of the media channels associated with the communication session, and the endpoint system or its
10 proxy using these details to establish corresponding media channel connections to the transport mechanism.

15 **26.** A system according to claim 22, wherein the service-session functional entity state of a communication session includes a leg controller for receiving leg messages from a corresponding leg controller of the endpoint system or its proxy, said leg messages indicating the state of connection of an endpoint entity to the transport mechanism .

20 **27.** A system according to claim 22, wherein in respect of an endpoint entity to be joined to a communication session, or its proxy, that already has connection functionality for joining and participating in a communication session, the service-session functional entity of the communication session to which the endpoint entity is to be joined is operative to invite this entity into the session by sending said connection details to the connection functionality of the entity or its proxy.

25 **28.** A system according to claim 22, wherein the service-session functional entity of the communication session to which an endpoint entity is to be joined, is operative to invite this entity into the session by sending the latter both connection functionality for joining and participating in a communication session, and said connection details.

30 **29.** A system according to claim 28, wherein the connection details and functionality are sent in association with a web page served by the service system.